



ELSEVIER

Contents lists available at ScienceDirect

Information and Organization

journal homepage: www.elsevier.com/locate/infoandorg



Organizational culture and information systems adoption: A three-perspective approach

Stephen Jackson*

University of Bedfordshire Business School, Vicarage Street, Bedfordshire, LU1 3JU, United Kingdom

ARTICLE INFO

Article history:

Received 12 October 2010

Received in revised form 25 March 2011

Accepted 29 March 2011

Keywords:

IS adoption

Culture

Cultural theory

Interpretative case study

ABSTRACT

Organizational culture continues to be cited as an important factor in the success or failure of information systems (IS) adoption. This is evidenced by the growing trend in the number of studies that address cultural issues in IS literature over the last several decades. Regardless of the contribution of many research studies up to now, various challenges still need to be addressed: firstly, studies continue to view culture as well integrated and shared equally among organizational members; secondly, there is a tendency for studies to downplay the dynamics of culture and how this influences IS adoption over time; and thirdly, there is an increased need to analyze culture using in-depth interpretative and longitudinal methods. This paper proposes that our understanding of IS culture can be enhanced by combining theoretical approaches in which the weakness of one approach can be complemented by the strength of another. More specifically, by combining Martin's (2002) three perspectives on culture – integration, differentiation and fragmentation and grid and group cultural theory (for instance, Douglas, 1970; Thompson et al., 1990), can offer a more penetrating account of how organizational culture influences IS adoption. This argument is demonstrated using an in-depth interpretative (retrospective) case study of a further and higher education college in the UK and its unsuccessful attempt to adopt a virtual learning environment (VLE).

© 2011 Elsevier Ltd. All rights reserved.

1. Introduction

Over the last few decades, interest in understanding and exploring cultural issues among IS practitioners and academics has intensified. This is evidenced by the growth in conference and journal

* Tel.: +44 1582 743714.

E-mail address: stephen.jackson@beds.ac.uk.

papers dedicated to its study. Davison and Martinsons (2003), for example, found a growing trend in the number of studies that address cultural issues in IS literature over the last several decades. One reason for this growth is attributed to the fact that too many IS adoption initiatives fail due to a misfit between culture and the IS introduced, or the failure of managers to understand culture and how this influences IS adoption practices. Moreover, culture is becoming increasingly important given the adoption of groupware applications, enterprise resource planning systems and other internet based systems by organizations, which support cross collaboration and require greater user participation at all levels.

Many researchers have investigated cultural issues in IS research, as witnessed by the variety of topic areas. Leidner and Kayworth (2006), for instance, in conducting a systematic review of how culture has been applied in IS research found several distinct topics emerging from the literature, including: “(1) culture and IS development; (2) culture and IT adoption; (3) culture, IT use and outcomes; (4) culture, IT management, and strategy; (5) IT’s influence on culture; and (6) IT culture”. As it would be unworkable to examine all these topics simultaneously, one topic of interest is exploring the relationship between organizational culture and IS adoption.

Notwithstanding the importance of organizational culture in the context of IS adoption (Barrett, 1999; Cabrera, Cabrera, & Barajas, 2001; Davison & Martinsons, 2003; Gallivan & Srite, 2005; Hoffman & Klepper 2000; Huang, Newell, Galliers, & Pan, 2003; Leidner & Kayworth, 2006), this paper recognizes that the concept of culture, to date, has been used rather restrictively. Firstly, IS culture studies typically view culture as well integrated rather than pluralistic or ambiguous in nature. Secondly, existing studies tend to downplay the dynamics of culture, failing to understand how and why cultural values collide and shift over time. Thirdly, existing approaches tend to view culture more as a variable – something an organizational ‘has’ which can be objectively measured through surveys, rather than viewing it as something an organization ‘is’ using in-depth interpretative and longitudinal methods.

This paper proposes that combining theoretical approaches – Martin’s (2002) three perspectives on culture – integration, differentiation and fragmentation and grid and group cultural theory (for instance, Douglas, 1970; Thompson, Ellis, & Wildavsky, 1990), can provide a rich understanding of the multifaceted nature of culture and how culture influences IS adoption. Furthermore, the study recognizes that when the three perspectives are considered sequentially they can offer a more penetrating account of the cultural dynamics at work. This is illustrated using an in-depth case study of a further and higher education college in the UK and its failed attempt to adopt a VLE.

This paper is organized as follows. First, the concept of organizational culture is introduced and explored more fully in relation to IS literature. Some of the main challenges faced in IS culture studies are explored. This is followed by research questions for this study. Next, the rationale for combining Martin’s (2002) three perspectives on culture and grid and group cultural theory are justified. Next, a discussion of the research methods and data analysis techniques used for this study are outlined and followed by a discussion of the empirical results. Finally, implications, limitations and conclusions of the study are outlined.

2. Literature review

2.1. Conceptualizing culture

Despite the importance of organizational culture and its study, research challenges continue to destabilize the concept. One major challenge is defining what exactly organizational culture is and how it should be studied (Ngwenyama & Nielsen, 2003). Davison and Martinsons (2003, p. 3), for example, note that “culture is difficult to study, partly because it is not an easy concept to define”. It is not the scope of this paper to systematically review or provide a comprehensive list of definitions of culture existing in IS research; nevertheless, some of the more prominent ones are now reviewed.

Culture has been defined in terms of something learned and passed on to new members. Some studies (Cabrera et al., 2001; DeLisi, 1990; Igira, 2008), for example, have been influenced by the work of Edgar Schein (Schein, 1985, 1990). Schein (1985, p. 84) defines culture as “the pattern of basic assumptions that a given group have invested, discovered or developed in learning to cope with its problems of external adaptation and integration and that has worked well enough in the past to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those

problems". Other IS studies (Abdul-Gader, 1997; Ferratt & Vlahos, 1998; Kamel & Davison, 1996; King & Sethi, 1999), particularly studies which examine culture at the national level, have been influenced by the work of (Hofstede, 1980) and conceptualized culture as the "collective programming of the mind which distinguishes the members of one human group from another" (p. 343).

Other researchers (Dube & Robey, 1999; Huang et al., 2003; Kaarst-Brown & Robey, 1999; Ngwenyama & Nielsen, 2003; Von-Meier, 1999; Walsham, 2002) have acknowledged that culture not only consists of values and beliefs but is also symbolic and can be expressed through organizational narratives, metaphors, myths or stories. Ngwenyama and Nielsen (2003, p. 101), for instance, in studying cultural values surrounding software improvement practices defined culture to be "organizational artifacts, such as: organizational structures and processes; values and underlying assumptions; and symbols".

As can be seen from the discussion above, even from a few definitions, the study of culture represents a collection of divergent conceptualizations – values, norms, beliefs, assumptions structures and symbols. This is only the tip of the iceberg, as studies also differ in their level of analysis and their treatment of cultural change and dynamism. One useful way to synthesize different competing conceptualizations of IS culture and provide clarity on IS research is to use Martin's (2002) three-perspective approach. These perspectives include: integration, differentiation and fragmentation. A summary of the three perspectives on culture and examples of IS studies which are similar to these perspectives are outlined in Table 1. For this study, in order to capture the complex and multifaceted nature of culture, culture is not only conceptualized as consisting of values and social relations, it is also symbolic – expressed thorough organizational metaphors, as well as integrated, differentiated and fragmented in nature.

Table 1

Summary of three perspectives on culture.

Adopted from Kappos & Rivard (2008, p. 606) and Martin (2002, p. 95 and p. 152).

	Perspective		
	Integration	Differentiation	Fragmentation
View of consensus	Consensus collectively shared among organizational members	Consensus is reached within the confines of subgroups	No consensus
Interpretation	Organizational-wide consensus: culture is united and agreed	Multiple subgroups co-exist and boundaries are clear	Subgroup boundaries are unclear
Benefit	Developing a shared culture can be useful for laying down the conditions of where the organization is and where it wishes to be in the future	Can bring to light power struggles between subgroups	Practical for understanding the unanticipated and paradoxical nature of culture
Drawback	View that culture is unified (organizational-wide consensus)	Assumption that subgroups are clear-cut	Difficult to conceptualize and study
Example of studies in IS	Chau, Cole, Massey, Montoya-Weiss, and O'Keefe (2002) Claver et al. (2001) DeLisi (1990) Gold et al. (2001) Hoffman and Klepper (2000) Kitchell (1995) Kanungo, Sadavarti, and Srinivas (2001) Powell and Dent-Micallef (1997) Ruppel and Harrington (2001) Sloan and Green (1995) Tomlin (1991) Dube and Robey (1999) Kaarst-Brown and Robey (1999) Kappos and Rivard (2008)	DiBella (1996) Huang et al. (2003) Lin and Ha (2010) Martinsons and Ma (2009) Shahron (2011) Von-Meier (1999) Wagner and Newell (2004)	Myers and Tan (2002) Robey and Boudreau (1999) Walsham (2002) Weisinger and Trauth (2003)

2.2. Three perspectives

2.2.1. Integration

The integration perspective views culture as well integrated and there is consensus among all organizational members. As [Martin \(2002, p. 94\)](#) highlights the integration perspective “focuses on those manifestations of a culture that have mutually consistent interpretations”. IS culture studies using this perspective often stress the need to build an integrated culture which fits or supports technology ([Cabrera et al., 2001](#); [Claver, Llopis, Gonzalez, & Gasco, 2001](#)). Thus, the greater the shared values of the organization, the stronger the organization's position will be to successfully adopt technology. [Claver et al. \(2001\)](#), for instance, conceptualize culture as the values shared by organizational members. They identify two cultural positions towards IS – an informatic culture (short-term IS planning/budgeting, separate IT and business strategy) and informational culture (long-term IS planning/budgeting, IT and business strategy alignment) – the latter orientation being one which best supports IS adoption. Their study highlights that in order to maximize IS efficiency, managers should build or fortify an informational culture. Similarly, [Ruppel and Harrington \(2001\)](#) argued that in order to get the most out of intranet adoption and foster effective knowledge sharing, managers should build an ethical culture (trust and concern for people); development culture (creativity and flexibility); and a hierarchical culture (policies and information management).

2.2.2. Differentiation

In contrast, the differentiation perspective recognizes that culture is not shared equally; rather, the same technology can be interpreted differently by organizational subgroups (or subcultures). [Martin \(2002, p. 102\)](#) acknowledges that “consensus exists within an organization – but only at lower levels of analysis, labeled subcultures”. [Huang et al. \(2003\)](#) in a case study of component-based development (CBD) of a banking firm, using [Martin's \(2002\)](#) differentiation perspective, illustrated that subcultural differences can have a negative impact on IS adoption. More specifically, differences between technologists, administrators and traders curtailed group effort and not all the expected benefits of adoption were realized. Although traders viewed CBD as beneficial, administrators perceived it merely as an additional workload. Furthermore, permanent technologists perceived contractual staff as a threat and withheld information to safeguard opportunities for promotion. Their study highlights that managers should take into account irreconcilable cultural differences when planning for, and introducing, IS into organizations. A similar situation was observed in [Barrett's \(1999\)](#) study of the adoption of an electronic placing support (EPS) system at the London Insurance Market. The study revealed that different organizational subgroups often possess different underlying values, assumptions and expectations which can, directly or indirectly, influence IS adoption practices. Although IT professionals and senior management expected that the system would improve transparency and efficiency between brokers and underwriters, brokers and underwriters could not see the benefits of adopting the new system, as it differed considerably from their traditional customs of face-to-face communication and interpersonal trust, leading to poor uptake of the EPS system.

2.2.3. Fragmentation

The fragmentation perspective “moves beyond the clear consistencies of an integration view and the clear inconsistencies of a differentiation view. Alternatively, fragmentation studies are more likely to view ambiguity as a normal, salient, and inescapable part of organizational functioning in the contemporary world” ([Martin, 2002, p. 105](#)). The goal for researchers is to untangle and make sense of this, ever-changing, cultural complexity. [Kappos, Rivard, and Lapointe \(2005\)](#), for example, used the fragmentation perspective to study the reactions surrounding a clinical information system (CIS) in a hospital. Their study found that the introduction of the system induced a number of paradoxical and ironic reactions which were neither clearly consistent nor clear-cut within sub group boundaries. For instance, although the majority of health care staff seen both cost and time benefits of the system during the initial stages of the project, during systems implementation doctors perceived the system merely as an additional work chore, consequently influencing their decision to sign a petition to have the system removed. Similarly, [Dube and Robey \(1999\)](#) using a case study approach to study software development process improvement at a technology solutions provider, found that culture is not only shared or only resides clearly among subgroups, but is also ambiguous in nature. Their study found that the existence of an outsourcing partner

brought with it a greater level of ambiguity and uncertainty as work practices between the organization and its partner differed considerably, leading to cultural values being subject to constant renegotiation.

2.3. Challenges in IS culture research

2.3.1. Challenge #1: single perspective view

Despite the different perspectives which have been used to investigate IS culture, studies tend to view culture from a single (integration) perspective rather than from multiple perspectives. Yet, all three of [Martin's \(2002\)](#) perspectives may co-exist within an organization. [Martin \(2002, p. 158\)](#) notes “if any cultural context is studied in sufficient depth, some things will seem to be consistent, clear, and indicative of collectivity-wide consensus. Simultaneously, other aspects of the culture will seem to coalesce into subcultures, enabling these subcultures to reinforce, be independent, or conflict with each other. At the same time, still other elements of the culture will seem fragmented, in a state of constant flux, and infused with confusion, doubt, and paradox”.

A number of studies ([Dube & Robey, 1999](#); [Kaarst-Brown & Robey, 1999](#); [Kappos & Rivard, 2008](#)) have illustrated that a better understanding of organizational culture can be developed through combining the three perspectives on culture within one single study. [Kaarst-Brown and Robey \(1999\)](#), for example, in their ethnographic study of IT use and management of two insurance organizations ([Icuban and Seeuac](#)) revealed that all three perspectives may be evident. Similarly, [Dube and Robey \(1999\)](#) found that viewing culture from all three perspectives can provide a rich and vivid portrayal of the cultural processes at work when implementing and managing software development practices.

It is therefore important that researchers do not remain blinded by using one perspective when analyzing culture. In other words, each perspective is inevitably connected to a certain type of cultural blindness and important insights can be gained by using multiple perspectives. One concern with the integration perspective is neglect of different organizational subcultures ([Brown & Starkey, 1994](#); [Ford, Connelly, & Meister, 2003](#); [Gallivan & Srite, 2005](#); [Leidner & Kayworth, 2006](#); [Walsham, 2002](#)). Although the differentiation perspective sheds light on the different power struggles between subgroups – overcoming problems with the integration perspective, it, nevertheless, assumes that subgroups are clear-cut and non-ambiguous in nature. While the fragmentation perspective addresses the ambiguous and paradoxical nature of culture, its inconsistent nature makes it difficult to investigate and conceptualize. As [Martin \(2002, p. 104\)](#) recognizes “the fragmentation perspective is the most difficult perspective to articulate because it focuses on ambiguity, and ambiguity is difficult to conceptualize clearly”. This might help explain why very few IS studies have used the fragmentation perspective ([Kappos & Rivard, 2008](#)). Nevertheless, its temperament and influence on IS adoption should not be ignored.

2.3.2. Challenge #2: studies tend to downplay the dynamics of culture

Secondly, another challenge is how frameworks/models have been used to analyze cultural values. As it would be impractical to provide an exhaustive list of frameworks for examining cultural values, some of the frameworks which specifically deal with organizational culture in IS research are summarized in [Table 2](#).¹ It must be stressed that it is not the intention of this review to criticize models. In most cases it is not the framework which is problematic; instead the problem is with how the framework has been applied. One concern is the tendency for studies applying frameworks to downplay the dynamics of culture. [Hofstede et al. \(1990\)](#) model provides important insights to understand the types of cultural values existing within an organization; nevertheless, it tends to categorize culture into dichotomous frames, merely distinguishing, for example, between employee and job orientation or loose and tight control. Increasingly cultural researchers ([Alvesson, 1998](#); [Ford et al., 2003](#)) have questioned this approach and its inability to understand the complexities which lie beneath and between dimensions. For example, a high job orientation might portray a rigid or stern management style. However, it says less about how the possession of a high job orientation can affect other social relations.

¹ Although numerous frameworks have been devised for analyzing culture at the national level (see [Hall, 1976](#); [Hampden-Turner & Trompenaars, 1994](#); [Harrison & Carroll, 1991](#); [Hofstede, 1980](#); [Hofstede & Bond, 1988](#)), its discussion has been omitted from this paper, since the main focus is organizational culture. For a detailed discussion of national culture a useful point of reference is review papers by [Gallivan and Srite \(2005\)](#) and [Leidner and Kayworth \(2006\)](#).

Table 2
Summary of organizational cultural frameworks used within IS.

Framework/model	Dimension/value	Description	Level of analysis	Examples of IS studies using this framework	
Four cultures framework					
Goffee and Jones (1996)	(1) Networked	Preference for high sociability and low solidarity.	Organization	Hoffman and Klepper (2000)	
	(2) Communal	Preference for high sociability and high solidarity.			
	(3) Fragmented	Preference for low sociability and low solidarity.			
	(4) Mercenary	Preference for low sociability and high solidarity.			
Competing values model					
Quinn and Rohrbaugh (1981)	(1) Group culture	Emphasize the importance of strong interrelation bonds between organizational members.	Organization	Hauser and Paul (2006)	
Quinn and McGrath (1985)	(2) Development/Adhocracy culture	Highlight the importance of innovation and growth.			McDermott and Stock (1999)
Quinn (1988)	(3) Rational culture	Value the importance of productivity and achievement.			
Quinn and Spreitzer (1991)	(4) Hierarchical culture	Emphasize the importance of stability and control.			Ruppel and Harrington (2001)
Six dimensions of practice					
Hofstede, Neuijen, Ohayv, and Sanders (1990)	(1) Process vs. results-orientation	The extent to which an organization is concerned with following the steps and procedures when completing tasks or concerned with achieving the end result.	Sub-unit	Cabrera et al. (2001)	
	(2) Employee vs. job orientation	The degree to which the organization is concern with employee well-being or job performance.			
	(3) Parochial vs. professional identity	The extent to which employees identify with similar professionals or rely on the organization itself for their identity.			
	(4) Open vs. closed communication system	Refers to the communications within an organization. In an open system culture information is more accessible compared to a closed system where information is controlled.			
	(5) Loose vs. tight control	The degree to which formality is endorsed within an organization. Loose control organization exhibit more relaxed customs compared to formal/strict practices followed in a tight control organization.			
	(6) Normative vs. pragmatic mentality	Focuses on the way an organization responds to environmental conditions. Normative cultures are more open to changing demands compared to pragmatic orientations which are concerned with following the rules.			
Organizational culture index					
Wallach (1983)	(1) Bureaucratic culture	Preference for power and authority.	Organization	Kanungo et al. (2001)	
	(2) Innovative culture	Stress the need for innovation, risk-taking and challenge.			
	(3) Supportive culture	Prefer kindness and trust.			

One model which is gaining popularity is the Competing Values Model (CVM). As shown in Table 2, the CVM identifies four cultural types – group culture, developmental/adhocracy culture, rational culture and hierarchical culture. The four cultural types are reflected by crossing of two dimensions. The first dimension includes the “flexibility-control” axis, emphasizing an organizational desire for change or stability. A flexible orientation reflects elasticity and change. In comparison, a control orientation reflects rigidity and stability. The second dimension “internal/external” axis focuses on activities occurring within and outside the organization. An internal focus emphasizes improvements within the existing organization, while the external orientation emphasizes adjustment and interaction with the external environment. One benefit of the CVM is its assumption that organizations will not embrace just one type; instead an organization will fuse the four cultural types to different extents.

Often the approach followed by IS studies using the CVM is to examine which combination of the cultural types best support IT. For instance, Ruppel and Harrington (2001) argued that management should ensure that the appropriate mix of an ethical culture, developmental culture and hierarchical culture is put in place to optimize intranet adoption. McDermott and Stock (1999) using data collected from a sample of 97 manufacturing firms studied, used the CVM to understand the effects of organizational culture on the implementation of advanced manufacturing technology (AMT). They found that organizations with group cultural orientations were positively related to managerial satisfaction with AMT implementation, and rational cultural orientations were positively related to competitive success in AMT implementation. However, both of these studies fail to account for dynamism and the impact when the four competing values come into contact or collide. Leidner and Kayworth (2006, p. 366), note that “studies need to move beyond trying to use cultural values to predict whether or not a group will adopt an IT to understanding the dynamics of adoption”. Another concern with the CVM model is that it has an external focus, as well as an internal focus, and is less suited for addressing the internal dynamics of the organization. Likewise, although Wallach's (1983) framework acknowledges the presence of cultural pluralism – “the flavor of an organization will be a combination of all three categories, to varying degrees” (p. 32), it talks less about the dynamism existing between the three cultural types.

Perhaps one reason why studies do not account for the dynamic nature of culture is because the approach followed is often to equate the organization as “the culture” (see Hauser & Paul, 2006; Hoffman & Klepper, 2000; Ruppel & Harrington, 2001; Wallach, 1983). Similarly, Leidner and Kayworth (2006), in reviewing IS culture literature found that of the articles examining organizational culture, 85% of the articles examined culture at the organizational level, fewer than 15% considered culture at the subunit level.

2.3.3. Challenge #3: lack of interpretative and longitudinal IS culture studies

A third limitation is the lack of IS studies which analyze culture using in-depth interpretative and longitudinal methods. Two dominant approaches to study culture include: functionalism and interpretivism (Smircich, 1983). Functional approaches regard culture as a “variable” – something an organization “has”, which can be objectively measured through surveys. In comparison, interpretative approaches focus on thickly describing the cultural environment through field work. Culture is viewed as something an organization “is” (Smircich, 1983). Approaches to study IS culture within organizations have included: *case studies* (Dube, 1998; Dube & Robey, 1999; Hoffman & Klepper, 2000; Tolsby, 1998; Von-Meier 1999); *interpretative case studies* (Doherty & Doig, 2003; Dube & Robey, 1999); *longitudinal studies* (El Sawy 1985; Madon, 1993); *ethnographies* (Kaarst-Brown & Robey, 1999) and *survey research* (Gold, Malhotra, & Segars, 2001; Grover et al., 1998; Harper & Utley, 2001; Hult, Ketchen, & Nichols, 2002; Jarvanpaa & Staples, 2001; McDermott & Stock, 1999; Ruppel & Harrington, 2001; Tomlin, 1991; Weber & Pliskin, 1996).

The vast majority of studies have examined culture through the use survey research and view culture as static over time. Martinsons and Davison (2003) note that given the increased use of interpretative research methods to study IS, and the fact that anthropologists and sociologists have been using interpretative methods for a long period of time, they highlight that IS culture ought to be given the same consideration. They argued the need to move beyond simple comparative research towards understanding how culture unfolds over time. Simply labeling divergent values and beliefs can no longer be considered as an important contribution to IS literature. They highlight the need to move from explaining “what” and “where” cultural values exist in a setting, to explaining “how” and “why” they exist.

2.3.4. Summary of research challenges

To summarize, various challenges still need to be addressed in IS culture studies. These include:

- 1) Studies tend to view culture from a single (integrated) perspective rather than from multiple perspectives. Both the differentiation and fragmentation perspective have been used less.
- 2) There is a tendency for frameworks, or studies using the framework, to downplay the dynamics of culture and how this influences IS adoption in organizations.
- 3) The need to move beyond static studies of culture and understand culture using in-depth interpretative and longitudinal approaches, particularly in relation to understanding “how” and “why” culture unfolds over time.

2.3.5. Research questions

In light of these challenges and following [Martinsons and Davison's \(2003\)](#) advice to go beyond the “what” and “where” to understand the “how” and “why”, this study attempts to address the following research questions:

1. How and why does culture emerge and shift over the duration of IS adoption?
2. How do cultural values formed by different organizational members influence IS adoption?

Before attempting to address these questions using an interpretative case study, it is first important to highlight the theoretical approach used.

3. Combining approaches

This paper proposes that combining [Martin's \(2002\)](#) three-perspective approach and grid and group cultural theory can overcome some of the current challenges existing in IS culture studies and offer a more penetrating account of how organization culture affects IS adoption. Combining approaches, it is argued, can compensate for each other's blind spot while drawing on the strength of the other. [Martin's \(2002\)](#) three perspectives have already been introduced. In the next section, grid and group cultural theory is outlined and includes the rationale for combining approaches for this study.

3.1. Grid and group cultural theory

Cultural theory was developed four decades ago by social anthropologist Mary Douglas in her book *Natural Symbols* ([Douglas, 1970](#)). Douglas's contribution was to devise a typology to classify how different social relations form cultural values and beliefs within any society. Cultural theory conceptualizes culture as consisting of three terms: social relations, cultural biases and ways of life ([Thompson et al., 1990](#)).

Social relations refer to an association between one or more people and can exist at the organizational, subgroup or individual level. Cultural bias refers to values and beliefs. Finally, when social relations and cultural bias band together it denotes a way of life. Drawing on the work of [Bernstein's \(1959\)](#) two-dimensional system of socio-cultural linguistics, Douglas used two dimensions to capture one's position within society. These dimensions consisted of grid and group.

Grid refers to the extent “to which an individual's life is circumscribed by externally imposed prescriptions” ([Thompson et al., 1990, p. 5](#)). In a strong grid environment, one's position will be influenced by factors such as title, age, gender or education. An example of a strong grid environment would be a large bureaucratic organization with its clear lines of authority, rank and role differentiation. In the grid dimension, individuals do not have a choice in choosing their social positioning in society.

Group refers to the degree to which an individual's existence is “absorbed in and sustained by group membership” ([Douglas & Wildavsky, 1982, p. 191](#)). Unlike the grid dimension, members can choose which group they belong to. Take for example the difference between two religious establishments, a convent and a church. A convent provides an example of strong group. Rather than members meeting weekly or annually (as is often the case in a church), members are immersed in full-time (daily) devotion to the

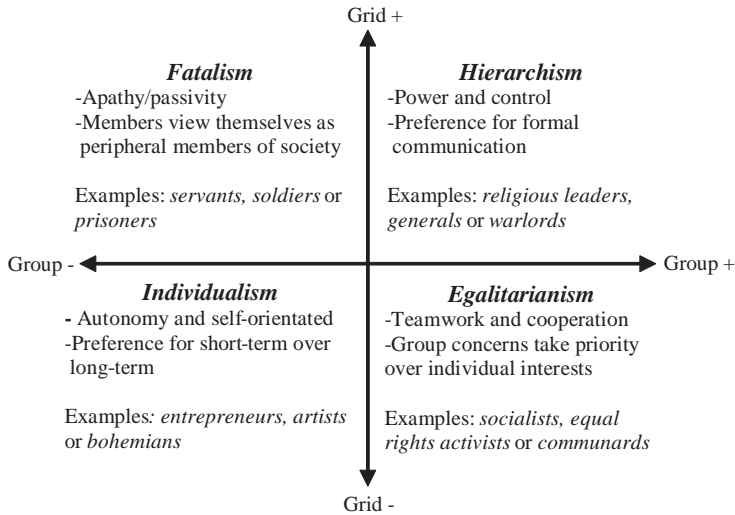


Fig. 1. Cultural theory.

group. The overlapping of the grid and group dimensions generates four ways of life. These include: fatalism, hierarchism, individualism and egalitarianism² (Fig. 1).

Fatalism is characterized by strong grid and weak group. Members' actions will largely be controlled by senior officials (strong grid) and the environment will be deficient of group devotion (weak group). Individuals feel that their opinions and suggestions are not valued or taken seriously within society. For this reason apathy will be pronounced in this orientation. As members have little voice they do not feel obliged to get involved in organizational events and perceive adopting to change as a pointless chore.

Hierarchism is characterized by strong grid and strong group. In this orientation there will be a strong preference for maintaining authority and placing control in the hands of senior managers. Members will know their position and role within the organizational ladder (strong grid). This may be illustrated by a high power distance existing between upper levels and subordinates. At the same time, there will be strong group boundaries (strong group), for example, ill-mannered behavior will only be tolerated up to a particular threshold.

Individualism is supported by both weak grid and weak group. Individuals do not feel compelled to conform to the expectations of the collective whole; rather they are autonomous and free of group restraint (weak group). Short-term opportunities are there to be seized and exploited. Individuals will have a preference for the short-term as opposed to the long-term. Roles within the organization will be less clear-cut (weak grid) and members will be free to outline their own terms to suit their own personal interests.

Egalitarianism is represented by weak grid and strong group. Teamwork and group-ethos will be strongly endorsed in this orientation (strong group). Members will take the view that inequality through autocratic leadership, age, gender or rank should be broken down and eradicated (weak grid). Hence, a foremost fear of this orientation will be inequity between members. Therefore, emphasis will be greatly placed on maintaining fairness and trust.

3.2. The rationale for combining approaches

Since its introduction, cultural theory has been applied to many subject disciplines. Mamadouh (1999, p. 395) notes that "it is perhaps odd that a theoretical framework designed to deal with cultural diversity

² Thompson et al. (1990) acknowledges a fifth way of life – the hermit. However, its discussion is not commonly recognized in the cultural theory literature and for this reason it has been omitted.

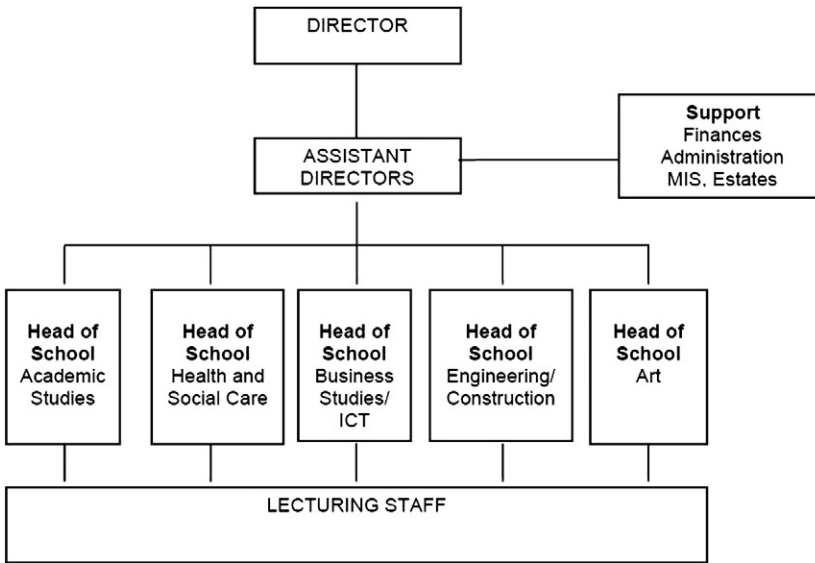


Fig. 2. College structure.

in remote places by an author interested in rituals, symbols, witchcraft, food and drinking habits, can be relevant in so many fields of social science...but the challenging character of the theory has aroused people from various academic disciplines and they have applied the theory in a broad range of research fields to generate insights about the most diverse topics". Some of the main disciplines which have applied the theory include: accounting, anthropology, architecture, organizational and business studies, political theory, criminology, social policy, public administration, science and technology studies, historians and geographers. Nevertheless, cultural theory has been scarcely applied to the study of IS culture, with the notable exceptions of [Jackson and Philip's \(2010\)](#) study on the management of technological change; [Tsohou, Karyda, Kokolakis, and Kiountouzis's \(2006\)](#) work on stakeholders' risk management; and [Philip and McKeown's \(2004\)](#) study on the role of IS in transforming organizational culture.

Cultural theory is not without its problems. Studies using cultural theory have progressed along different lines resulting in conceptualizations of culture pulling in different directions. On one hand, the theory has been labeled as a static classification tool (functional device) for simply mapping the number of individuals belonging to a particular way of life ([Douglas, 1973](#)). On the other hand, the theory has been used to examine cultural pluralism and dynamism ([Thompson et al., 1990](#)). Such inconsistencies has led some cultural theorists to believe the theory is unclear ([Boholm, 2003](#)), making it difficult to formulate meaningful research questions which warrant empirical investigation ([Boholm, 1996](#)). [Martin's \(2002\)](#) three-perspective approach it is proposed can bring clarity on conflicting notions of culture within the cultural theory literature.

However, one weak point with Martin's three-perspective approach is that the approach says less about the types of values present within an organization and how values are tied to social relations – a strength of cultural theory. There is growing awareness among IS culture studies ([Gallivan & Srite, 2005](#); [Leidner & Kayworth, 2006](#)) of the need to understand further how cultural values influence IS. [Leidner and Kayworth \(2006, p. 371\)](#) note that "still much remains to be done in isolating and understanding IT-related values and the impact of these values on IT". Furthermore, few studies have specifically examined fatalism and how fatalism can influence IS adoption practices ([Jackson & Philip, 2005](#)). Owing to the fact that fatalism is central to cultural theory further justifies the use of cultural theory for this study.

Table 3

Summary of interviews conducted.

Role/department	Number of staff interviewed
Assistant directors	3
School of academic studies	
Head of department	1
Lecturers	3
School of health and social care	
Head of department	1
Lecturers	3
School of business/ICT	
Lecturers	3
School of engineering/construction	
Head of department	1
Lecturers	2
School of art	
Lecturers	3
Support functions	
IT manager	1
Secretary	1
IT technician	1
Careers advisor	1
Total	24

3.3. Three perspectives

Using [Martin's \(2002\)](#) three-perspective approach to analyze the cultural theory literature it is apparent that studies have viewed culture as integrated, differentiated or fragmented.³

3.3.1. Integration

An example of the integration perspective within cultural theory is [Perry's \(2006\)](#) study on risk management among school leaders. Perry recognizes that risk management practices among schools can be enhanced by establishing a shared culture of flexibility and creativity (individualism); rather than an orientation reflecting conformity and rigidity (hierarchism). Similarly, [Philip and McKeown \(2004\)](#) in their study of organizational culture and business transformation at a large aerospace organization concluded that a key goal for managers is to transform the culture from one embracing fatalism and hierarchism to one which is market-driven and team-focused.

3.3.2. Differentiation

Studies within cultural theory have sought to understand the power struggles existing between organizational subgroups. Examples of the differentiation perspective include [Rayner's \(1986\)](#) anthropological study of subculture differences among medical practitioners and support staff in a single hospital and [Mar's \(1982\)](#) study of subcultures and workplace crime. Mar's found that the ways of life proposed by Douglas portray distinct occupational subcultures, which can influence the nature and type of crime committed in the workplace.

3.3.3. Fragmentation

Finally, studies ([Schwarz & Thompson, 1990](#); [Thompson et al., 1990](#)) have sought to understand culture from a fragmentation perspective. [Thompson et al. \(1990\)](#) in their study of political cultures argues that culture is in a state of flux which does not stabilize over time. The authors highlight that an individual may move within or between the four ways of life at any one time and the same individual may be part of

³ It was not the purpose to comprehensively review all studies within the grid and group cultural theory literature, rather to select several studies to acknowledge that, although each study did not specifically mention Martin's perspective, the perspectives do exist.

multiple cultural identities simultaneously. Similarly, Douglas in later work highlights “there is no assumption of fixity, on the contrary, the four types are represented in any community and social life is in permanent tension and flux” (Douglas 1999, p. 411). In other words, culture is not static – it is ambiguous and constantly enacted and reenacted as individuals respond to their internal environment and react to changes around them.

4. Method

4.1. *The research site*

The research site is a further and higher education college within the United Kingdom. The name of the college (including names of staff members) has been disguised to conceal its identity. The college has a rich history stretching back to 1910 – when it was first established. At the time of study, the college offered over 270 full-time and part-time courses, ranging from vocational, academic, and occupational-based skills training. The college operates from three campuses throughout the region. Overall student enrolment in the academic year 2004/2005 was approximately 8000 and over 220 full-time staff members are employed by the college. A simplified version of the organizational structure is shown in Fig. 2 below.

4.2. *Methodology*

Given the need to move beyond static studies and understand culture as a deep interpretative process, a longitudinal (retrospective) was used for this study. The goal was one of thick description – taking into account the first-hand experiences, problems and dynamics as they emerged within the college (Geertz, 1973). Unlike positivism, which measures culture through rigid hypothesis testing and quantifiable measures, the interpretative approach assumes culture not as fixed, but is constructed and reconstructed through the ongoing actions of organizational members over time (Hirschheim & Newman, 1991). Thus, the case study approach is useful as the researcher assumes no direct control over the events which may unfold.

Prior to the study, the college director was contacted by telephone and expressed a desire to take part in the study. The key researcher had not been employed by the college, allowing for an outsider perspective to be maintained at all times. After an initial meeting with the director, an assistant director became the first point of contact for all matters relating to the investigation. This permitted the access required for an in-depth study of cultural issues and created greater trust and willingness for all employees to participate in the research study.

Multiple methods (interviews, document analysis and observations) were used for this investigation to allow for cross-examination of the evidence. Commonality across interviews was achieved by using standard questions across all interviewees. However, interviews were semi-structured in nature to allow for probing and issues to be explored in detail. Twenty four respondents were interviewed from across departments and levels from August–October 2005. Respondent details are summarized below (Table 3).

Respondents were selected using maximum variation sampling (Patton, 2002). This approach involved purposefully selecting a range of cases from across all departments and levels directly involved in the IS adoption to explore variation of viewpoints. This included: assistant directors, senior managers, middle managers, user champions and users.⁴ Each interview lasted for approximately one to one and a half hours. A number of documents were gathered, including: progress reports, project minutes, internal documents, project plans and company literature. Observations were also conducted to decipher the work culture. This involved observing day-to-day work practices over a three month period, largely prior to and after interview sessions. Informal (unobtrusive) observation techniques were used. This included joining staff for coffee, frank chats along corridors and observing IT/IS use in class-rooms and staff rooms. The role of “observer-as-participant” (Gold, 1969) was adopted, to ensure an outsider perspective was maintained at all times.

⁴ The college director expressed an interest in the study but unfortunately was unavailable for interview.

Klein and Myers (1999) set of principles for carrying out and evaluating interpretive research were followed. Both the political and historical context of the research site and how this influenced emergent events was taken into consideration. Obviously, the interview techniques used may influence the data collected or shape the researchers understanding to some extent. Given the sensitive nature of organizational culture it can be easy for the researcher to get caught up in the action and join the sides of a certain subgroup. Although close interaction with the subjects under investigation is fundamental and unavoidable, there was a need to preserve a balance between insider and outsider status. The latter being the approach followed in this study. To avoid the risk of misconceived interpretations, findings were written up as described using the words of respondents.

The aim of the study was not to test theory in a positivist sense; instead theory became the lens to guide the study, including the coding and interpretation of data. The use of theory as a template for guiding data analysis is not an uncommon practice within the interpretative research tradition. For example, Walsham (2006), an advocate of interpretative case study research in IS research, acknowledges that “theory can be used as an initial guide to design and data collection, as part of an iterative process of data collection and analysis, or as a final product of the research” (Walsham, 2006, p. 324). Similarly, Dube and Robey (1999) using an interpretative case study, applied Martin’s three cultural perspectives as an “interpretative lens” to guide their research study.

4.3. Data analysis

HyperRESEARCH 2.6 (a qualitative data analysis software package) was used to analyze the data – due to the large dataset. Data analysis consisted of a number of steps.

Step 1 consisted of creating a source file to combine all the sources of evidence (interview transcriptions, observations, documentary analysis and personal notes). This involved identifying the key events which unfolded over time in a chronological fashion. Project documentation was useful at this point to identify key project dates and milestones.

Step 2 consisted of analyzing the data and applying coding to selected text. This involved coding text into categories using the four cultural types as illustrated in Fig. 1. Keywords were used to identify each cultural type. Keywords included: apathy, passivity and isolation for fatalism; power, control and formal communication for hierarchism; creativity, self-driven and autonomy for individualism, and teamwork, cooperation and trust for egalitarianism. The goal was not to count the frequencies of most cited keywords through statistical analysis; instead the aim was to use the keywords as a broad guide and become more specific and selective as the analysis deepened. Further coding was added to each cultural type. Examples of further coding included:

Fatalism: feelings of doubt, users feel isolated, reliance on traditional processes, lack of optimism, staff feel they are told what to do and lack of user involvement.

Hierarchism: sentiments of power and control among senior management, management are seen as bureaucratic and administrative, decision making confined to higher management, senior management hold the purse strings in relation to introducing change, communication through formal means, benefits of change not sold to staff, lack of support for change, hidden agendas, environment of distance between management and staff.

Egalitarianism: expectation that the project would improve relations between departments, increase organizational trust, create a shared sense of purpose, bring us all together and improve knowledge sharing.

Individualism: self-interest expressed by user champions, user champions motives driven by financial desire, unwillingness of champions to co-operate with others.

During the analysis a number of key questions were raised when identifying the cultural types, for example, was the culture values identified integrated, differentiated or fragmented? Who formed the cultural values? Did the values occur at the organizational, subunit or individual level? Did the cultural values exist in the past or did they emerge during the adoption of the VLE? Why and how did the cultural

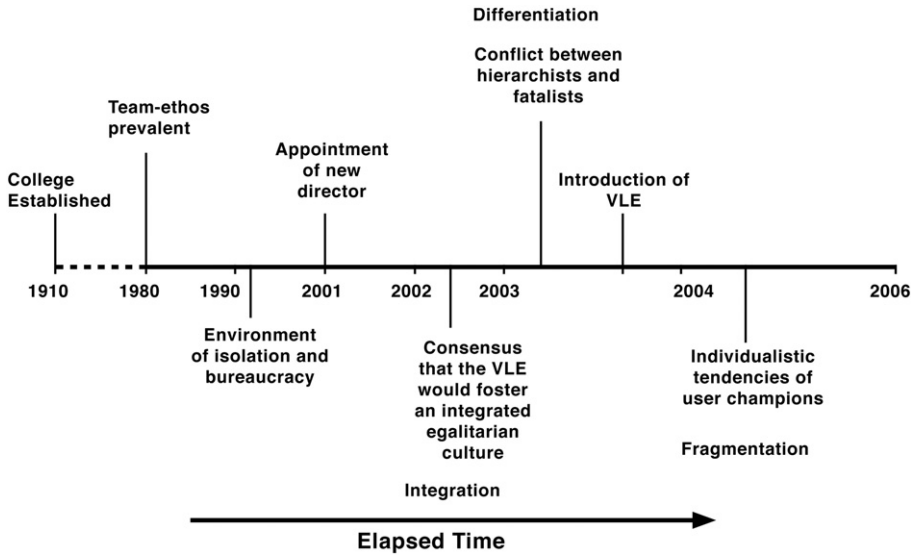


Fig. 3. History and major events over the duration of VLE adoption.

values come about, and what effect (if any) did the cultural values have on the IS adoption? Answers to these questions were also noted.

5. Case study

To recap, an in-depth retrospective case study is presented and findings are mapped against [Martin \(2002\)](#) three perspectives – integration, differentiation and fragmentation ([Table 1](#)) and grid and group cultural theory ([Fig. 1](#)) over the duration of the Virtual Learning Environment (VLE) adoption. A VLE allows lecturers to create, upload and share educational resources to students through an online environment. Educational resources include: learning material, video, assessment, wiki, blog, chatroom and electronic communication. It can also be used by administrative staff for recording and monitoring student attendance and by senior managers/directors to disseminate information, quality control and performance management. For a further description of the characteristics of a VLE refer to [Piccoli et al.'s \(2001, p. 404\)](#) study on web-based learning environments. In the case of the college, the VLE adoption refers to the software, hardware and supporting services. The VLE adoption affected all full-time members, requiring the input from all departments and levels. Initiation of the VLE began in February 2003; however, was not in use at the start of data collection in August 2005. [Fig. 3](#) summarizes the history of the college and some of the major events which evolved during the VLE adoption.

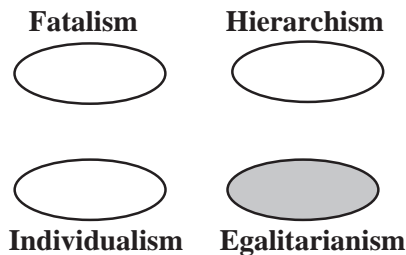


Fig. 4. Integration.

5.1. Brief history

The college has a long, yet varied, history. Long serving members, who had worked in the college for over 30 years, discussed how the institution once endorsed a team-ethos back in the 1980s, where staff from all levels and departments would meet regularly at lunch times for games of snooker and have frequent group outings. However, in the 1990s this orientation gave way to an environment favoring isolation and bureaucracy. The team-ethos environment of the 1980s was quickly eroded and was replaced by a “them” and “us” attitude between departments and levels. This was attributed to the change in management style and restructuring of the college over the years.

One of the longest serving members of the college shared:

“Everybody is working more in isolation, there’s not the same communication. Communication between people seems to be getting less within the college. People come in through the door every morning and they go to their own sections. In the past we used to have a big staff room and everybody went there – you went there and had a bit of banter, a cup of tea and a couple of guys might have played snooker at dinner time. It was good for morale because people got together and they shared their problems! It was across all teaching staff, support staff, heads of departments and top management. Do you understand? Each member chipped a pound a week into the kitty and went out for a meal at Christmas. You know that was the type of thing going on then, but not now” (Head of Department, School of Engineering/Construction).

5.2. Initiation

In 2001 the college appointed a new director, who brought with him the desire to eradicate the old fragmented and bureaucratic structure and make the college into a forward-thinking and technology-driven workplace. One member shared:

“Well, we had a change of management a number of years ago. Mr Stewart has come in, and has really brought a sort of technology revolution. Before he arrived here, everything went in brown envelopes around the college, even internal mail and handbooks” (Lecturer, School of Health and Social Care).

Initiation of the VLE was also due to growing complaints with existing systems. Prior to introducing the VLE, a number of standalone systems existed. Due to its large student base and ongoing commitment to providing high-quality education, the director was concerned that existing systems were highly ineffective and would not be sufficient in supporting the long-term strategic needs of the college. Senior managers valued a solution which would allow for evaluation of course performance, quality control and resource allocation. Users felt that existing systems were very user unfriendly and cumbersome. Lack of systems integration between departments resulted in data duplication and information accuracy was a pressing concern, often acting as a major source of irritation for departmental administrators. Lecturing staff shouldered much of the administration burden and were often asked for the same information several times throughout the year, detracting from their focus on delivering high quality teaching. Users valued a real-time system which was more reliable and enable effective communication between departments.

5.3. Integration

To overcome these challenges, the director introduced a number of measures to take the college forward. These included: investing in technology, staff development and training, a plan to set up a college-wide staff room in the near future to break down departmental boundaries, and developing a college-wide vision and common goals to bring staff members together as an interrelated unit. The director took the view that technology would redesign organizational processes or as [Hammer \(1990, p. 105\)](#) puts it using “the power of modern information technology to radically redesign business processes in order to achieve dramatic improvements in performance”.

Table 4

Individuals/groups involved in VLE adoption.

Group	Individuals involved	Function
Steering group	Consisted of director, assistant directors and IT manager	Provide resources and overlook project costs and benefits
Project team	Consisted of the head from each school	Coordinate and introduce the VLE and provide guidance to the steering group
User champions	Three lecturing staff selected internally	Represent the interests of users and address any concerns they might have
Users	Consisted of lecturing staff and support staff from across all schools	Interact and use the new system

Although members shared the view that isolation and bureaucracy were rife within the college, at this stage in the project (mid 2002), there was organizational-wide consensus that the VLE would drive out the old values and customs and promote values of teamwork and cooperation as outlined in Fig. 4.

In the words of one assistant director: “during the early stages of the project there was [the] feeling that we were in this together, that we could all see the benefits of using the system...there was the desire to get from somewhere better than we were”.

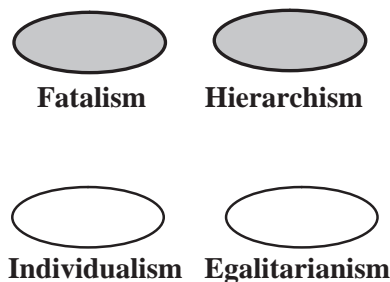
This sentiment was commonly shared across departments, for instance, there was agreement among members that the introduction of the VLE would lead to “departments working together” (Lecturer, School of Health and Social Care). Another lecturer envisioned that the VLE would “bring us all together” (Lecturer, School of Academic Studies). The dominant theme running across the college at this stage was that pessimism, although prevalent in the past, would be replaced by a shared sense of purpose.

5.4. Group/individuals involved in the VLE adoption

Various groups were set up during the initial stages of the project. Groups included: the steering group, project team, user champions and users. The steering group consisted of the director, assistant directors and IT manager. The task of the steering group was to provide resources and to overview project costs and benefits. A project team was also set up, which consisted of the head of school from each department. The role of the project team was to coordinate and introduce the new system within each school and provide advice to the steering group. The user champions consisted of three lecturers selected internally. Their role was to represent user interests and address any concerns which users faced. Users consisted of academic and support staff from across all departments. A summary of the groups/individuals involved are outlined in Table 4.

5.5. Differentiation

Two distinct subgroups existed within the college. Referring back to Fig. 1, senior managers within the college represented the hierarchists and were commonly referred to as “the hierarchy”, “upper

**Fig. 5.** Differentiation.

management”, “bureaucrats” “top down managers”, or “administrators”. The hierarchists relied heavily on traditional “interpersonal ties” (‘old boy network’) and a strong inclination for power and authority. System users (notably lecturers from the School of Academic Studies, Health and Social Care and Engineering/Construction) were labeled as the fatalists and were commonly referred to as “old school”, “old hands”, “neanderthals”, or “old campaigners”. The fatalists typically represented those members who had devoted a long service to the college. Both subgroups were distinct and segregated and a high power distance existed between them. An external inspectorate report (2001) revealed that cross college responsibilities were not distributed evenly, illustrating the high power distance environment between higher and lower levels.

In the past, when attempting to introduce a program of change (IT-related or non-IT related), these two subgroups (fatalists and hierarchists) did not see eye-to-eye and often collided resulting in so-called “turf wars”. One assistant director, for instance, illustrated how historical tension between these two groups resulted in friction: “try to drive through our college a new initiative, not even IT related, you will always find resistance [between these two groups]”. Each subgroup did not understand each other's needs. The fatalists perceived the hierarchists as “bureaucrats” – officials who are primarily concerned with giving orders and the hierarchists commonly perceived the fatalists as educators who were not interested in performance indicators.

Tension between these two groups was, as described by one assistant director, partly owing to the fact that senior managers came from industrial rather than academic backgrounds. From the perspective of one steering group member (Assistant Director): “management don't teach you see, this is the problem, and therefore we have no credibility among teaching staff... staff will take the view that management are seen as bureaucratic – as exercising power and influence!”

Unfortunately, the historical tension which, existed between these two groups, reappeared during the initiation of the VLE in early 2003 as shown in Fig. 5 and was still evident at the time of study. The hierarchical response of the senior management team was to reinforce its position of authority (remaining devoted to the preceding regime) and they were reluctant to forego their political power. Decisions regarding the VLE were made behind closed doors and discussions were shrouded in secrecy within the confines of the senior management team. One interviewee (Lecturer, School of Health and Social Care) highlighted: “management don't really come to us you know. We don't hear anything from management – they have their own agenda”. The latent strategy of the hierarchists was not only to protect their powerbase, but to develop the system based on their needs – evaluation of course performance, quality control and resource allocation.

Consequently, the fatalists felt undervalued that their views and opinions were not taken on board-viewing the VLE to be ultimately determined by management over which they had no control. One respondent illustrated: “It's coming whether you like it or not. I can just do what I can do and anything I can't, I just don't bother!” In many ways this group felt like as what Douglas (1999, p. 412) describes as “isolates” – individuals with limited voice and constrained under a system of rules which they must conform to. They felt that the benefits of the proposed system were not sold to them and perceived the VLE as solely to benefit managers; rather than making their tasks easier. One interviewee shared: “we needed to be sold the benefits of this...I'm not interested in how technology makes management more effective... cause I'm not a manager, I'm a classroom teacher...if it is not enhancing teaching and learning I'm not interested”.

The environment quickly changed from one of optimism to hostility between these two groups, even before the VLE was introduced into the college. The steering group were not prepared to relinquish their power and continued to introduce the system in a controlled way. The power distance between these two groups remained steadfast, rather than dissolving. When the VLE was introduced into the college, the fatalists took a dormant role and made little effort to shift from their traditional ways and adopt the VLE. Typically values included: “I am not doing that, you can't force me to do that” (Lecturer, School of Academic Studies) or “what are they [senior management] looking us to do now” (Lecturer, School of Engineering). This group did not fully commit themselves to training sessions; inwardly remaining withdrawn and “put off” rather than encouraged. One IT manager shared: “there would be quite a few who isolated themselves from the changes”. Such apathetic behavior had a knock-on effect, fostering other users (administrators, other academics and support staff) to develop a “why should we adopt, if others aren't adopting” attitude. The effects of differentiation made the college impervious to change, fostering an impassive orientation.

5.6. Fragmentation

As previously mentioned in Table 4, three user champions were selected to encourage use of the VLE within the college. User champions consisted of two lecturers from the School of Academic Studies and one lecturer from the School of Business/ICT. The selection of the user champions was not a carefully thought out process. As one respondent highlighted:

“We put out a notice of what we were looking for...we got three replies and we made those three people champions...no selection criteria or anything like that”.

Each user champion was assigned approximately 2 h each week to undertake their role. One surprising event which emerged in late 2004/early 2005 was the individualistic tendencies of the user champions. The user champions, given increased freedom, abused this position to their own advantage, accentuating their own interests above others. In the words of one IT manager:

“They [user champions] were looking out for their own jobs, saying well look a second here, I am down in hours, and my job could be under threat. I know a bit about IT... well I will take those hours, and hide basically for the rest of the year – they were not proactive!”

From the perspective of one assistant director: “we didn't keep an eye on them from a distance... there was no strategy for what a champion was to do... [they] were never cohesively controlled across the college...they were out on a limb”.

The user champions pushed the boundaries, and did not represent the collective interests or concerns of users. For example, although the champions were responsible for rallying users, they often dissented and did things their own way, breeding a self-centered orientation. Without the coordinating strengths (rules, authority, and discipline) of the steering group, it opened up the chance for rampant individualism. Hendry (1999, p. 564) highlights that an organization devoid of “an authority figure makes the system vulnerable to malfunction and open to subversive ideas...weakening of the classification system may also allow space for groups of oppressed individuals to seal themselves off from a dominant hierarchical culture”. Hendry, using the example of the British and Swedish Trades Union Movement, highlights that although the Sweden Movement evolved to include a preference for structure, hierarchy and discipline, the British Movement relied less on the controlling strengths of the hierarchy (developing a more *laissez-faire* approach), consequently leading to its members abusing this autonomy to their advantage by developing a counterculture independent of the British Trade Union Association.

Unfortunately, the egotistical behavior of the user champions did not encourage uptake of the VLE. From the perspective of one interviewee: “we were to get support from them [user champions] and there was very little support, they were supposed to be the superstars! (Head of Department, School of Engineering/Construction).

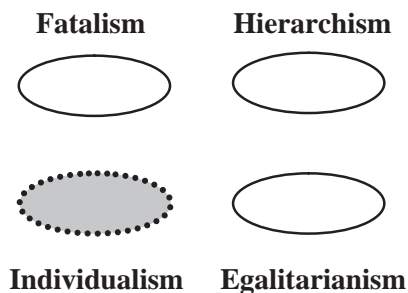


Fig. 6. Fragmentation.

From the perspective of another lecturer:

“Management appointed the champions, and they thought that they were going to support us, but actually it was the opposite...I got no support...I thought to myself why bother [using the system]” (Lecturer, School of Academic Studies).

Similarly, another respondent highlighted: “they [user champions] weren't proactive, they didn't go out and spread the message... it shouldn't have been the case, they should have been out there”.

Here we have a situation of fragmentation; sub cultural types within the college were not stable, clear-cut or fixed. A person could associate with several ways of life simultaneously or spontaneously change ways of life as they react to changes around them. For instance, in the case of the college, a lecturer could be described as being part of fatalism, while at the same time exhibit individualistic tendencies as a user champion, as illustrated by the dotted lines in Fig. 6 below. In other words, culture was not rigid or fixed; instead culture was emergent, temporal and paradoxical in nature as shown in Table 1.

5.7. War metaphor

A common approach used by anthropologists is to use a metaphor to help visualize the theme in question (Douglas, 1986, 1992). Furthermore, Martin (2002 p. 94) used a metaphor to visualize each perspective on culture. This included a “solid monolith” to illustrate the integration perspective, “islands” (“subcultures are like islands of clarity in a sea of ambiguity”) to visualize the differentiation perspective and “lightbulb” (“individuals within a culture are each assigned a light bulb”) to visualize the fragmentation perspective. Similar to Martin's (2002) approach, the three perspectives which unfolded over the duration of the VLE adoption can be visualized through the “war metaphor” (Kendall & Kendall, 1993).

During the early stages of the project (mid 2002), there was organizational-wide consensus (*integration*) that the new director would break down the old culture and create a team-based (egalitarian) culture. At this time there was no evidence of a war and shared values and a commitment to common goals were prevalent. However, this was short-lived, and mid 2003 was characterized by subgroup conflict between more oppressive leaders (“hierarchists”) and the lecturers (“fatalists”). Each side was viewed as the enemy, actively at war with each other (*differentiation*). The opportunistic behavior of the user champions (*fragmentation*) which emerged in mid 2004 represents a common type of war character – “war looters” (pillagers), who selfishly attempted to exploit the condition of war. For instance, realizing that a battle had broken out between the hierarchists and fatalists, the user champions did not commit themselves to either warring faction; instead they piggybacked off this, exploiting the situation to their own gain.

5.8. An unsuccessful adoption

It is not the intention of this paper to review all definitions of what constitutes IS success or failure. Nevertheless, Lytinen and Hirschheim (1987) four major categories of IS failure – process failure, correspondence failure, interaction failure and expectation failure, are useful for understanding why the VLE adoption was unsuccessful. Firstly, *process failure* refers to failure as a result of poor systems development practices or when the system works as required but is not delivered on time or within budget. Although the VLE worked fine in practice, it was not delivered on time. The college expected to have the system in place at the start of 2005, but at the time of study the system was still not embedded. In hindsight, the power-driven environment taken up by senior management, the fatalistic nature of certain users and the egotistical behavior of the user champions resulted in an orientation which, to a large extent, slowed down adoption. Additionally, hosting of the VLE was outsourced to an external supplier and this created a number of bottlenecks – poor connectivity and the system frequently grinding to a halt or regularly crashing, further leading to overruns in time.

Secondly, *correspondence failure* occurs when the IS does not meet planned objectives. Some of the main planned outcomes of the change were to facilitate a culture of teamwork, allow senior managers to evaluate course and student performance, create a virtual environment for students, reduce administrative procedures and be used as an effective teaching and learning tool for lecturers. At the time of study, none of

the original planned outcomes of the change were achieved. The VLE system did not enable an e-learning environment, manual processes had not been reduced, the system was not used as an effective tool for evaluation. In many ways, the adoption of the VLE created additional problems – communication problems, naming and shaming, and subgroup squabbling.

Thirdly, *interaction failure* refers, simply, to non-use of the system. Although the system was still in place at the time of study, it was not used. Users found the VLE a burden and still preferred traditional methods over using the new system. For instance, the IT manager shared how the system was “not used” and how uptake had been “abysmal”.

Fourthly, *expectation failure* is the inability of the IS introduced to meet stakeholder expectations – clearly this was the case in the college. Lecturing staff viewed the system more as a management tool rather than a system to enhance teaching and learning. Furthermore, at the time of the study, although senior managers expected to have a system in place to aid with quality control and course performance this was not the case.

6. Discussion

This study set out to address two key questions: firstly, how and why does culture emerge and shift over the duration of IS adoption? And secondly how do cultural values formed by different organizational members influence IS adoption? In relation to question 1 – how culture emerges and shifts over time, referring back to [Table 1 – Martin's \(2002\)](#) three perspectives on culture, this study found that all three perspectives are reflected in IS adoption, passing from one perspective to the other in a sequential rather than simultaneous fashion. Using [Fig. 1](#) (grid and group cultural theory) it was revealed that the college moved from egalitarianism (integration), then subgroup conflict between the hierarchists and fatalists (differentiation) and finally cultural ambiguity as represented by the individualistic tendencies of the user champions (fragmentation). Thus, culture was not static but was dynamic and continuous in nature. Similarly, [Dube and Robey \(1999\)](#) using Martin's three perspectives of culture found that the perspectives evolved in a somewhat sequential manner. They found that regardless of manager's attempt to build a shared culture of teamwork among development groups (integration), distinct subgroup emerged (differentiation) and ambiguity was encountered with its outsourcing partner (fragmentation).

One important question which can be raised is: do the three perspectives occur in isolation of one another? From this study it was found that each perspective may overlap at certain points in time. For instance, although the differentiation perspective triumphed in 2003, subgroup conflict continued and co-existed with the fragmentation perspective in 2004/2005. It cannot be claimed that other educational institutions (or organizations) will pass through all three perspectives or embrace the same cultural values as outlined in the case study. Any sequence may be possible. For example, an organization may pass from differentiation to integration or from fragmentation, to integration and then differentiation. You may even find the case where an organization moves from integration to differentiation, and then back to integration. Or perhaps an organization may be more inclined to cling to individualism or egalitarianism, rather than fatalism or hierarchism. In other words, all three of [Martin's \(2002\)](#) perspectives and the four ways of life should be applied at each point throughout the IS adoption lifecycle.⁵

In relation to the second part of question 1 – why culture emerges and shifts over time, in the college cultural change was provoked by a number of triggers which did not match and conflicted with the existing values held by organizational individuals. Examples of triggers may include: the introduction of new technology, organizational restructuring, changes in leadership, perceived loss of power, job-related financial concerns, redefined roles and responsibilities or negative experiences of the past. Triggers can be beneficial, for instance, promote positive cultural change or use of technology, or negative – leading to situations of resistance or breakdown. Unfortunately, the latter prevailed in the college. Firstly, the appointment of the new director who

⁵ It is important that IS adoption is viewed from all three perspectives at each point in time. Although, in the case of the college, one perspective was more prevalent at a certain point in time it cannot be ruled out that the other perspectives did not exist. [Martin \(2002, p. 156\)](#) argues “if one perspective seems easier to see than the others, then this will be the researcher's or the cultural members' home perspective; the other hidden perspectives will be visible to, if the researcher or the cultural member looks hard and in depth”. Similarly, [Thompson et al. \(1990\)](#) acknowledge that any of the four ways of life may come into existence at any given time.

was perceived by others as young and agile, and had previously worked in another award-winning and forward-thinking college, brought with him the desire to eradicate the old college culture and introduce values of teamwork. Although there was organizational-wide consensus at first, the shift from the old adversary culture consequently, triggered subgroup conflict – as new values differed radically from the old (trigger 1). The user champions realizing they had unbridled freedom and were fully aware that the director was preoccupied with resolving subgroup conflict (trigger 2), attempted to seize this opportunity to their own advantage.

This leads to one important question – did senior managers have any control over the cultural orientations which unfolded at a given time. In other words, realizing that an unproductive orientation existed, what, if anything, could they have done to help control the situation? Although managers realized that the constraining cultural environment existed, they had little control to help manage the situation. [Gallivan and Srite \(2005\)](#) identified four responses an organization can take if a constraining orientation arises: firstly, management can change the functions or design the technology to make it more accommodating to the needs of the culture; secondly, abandon the IT project; thirdly, allow users to modify or adjust the technology to suit their needs, or fourthly, go ahead knowing that the cultural constraints may persist or affect the IT project. If we refer to college, the response taken was to carry on despite the negative effect which culture had on the VLE. The reason being that there was the expectation that over the longer term this constraining environment would diminish and there would be support for the VLE.

In relation to question 2 – how do cultural values formed by different organizational members influence IS adoption? From the case study, three ways of life – hierarchism, fatalism and individualism impeded the adoption of the VLE in a number of ways. The hierarchical values of senior managers fostered an environment of power domination, leading to an environment devoid of trust. Powerful members feared that the introduction of the VLE would usurp their power, and quashed any attempts to introduce it into the college. Studies ([Hasan & Ditsa, 1999](#); [Kaarst-Brown & Robey, 1999](#); [Ruppel & Harrington, 2001](#); [Tolsby, 1998](#)) have highlighted that a high power distance between higher and lower levels can have a detrimental impact on IS adoption success. [Kaarst-Brown and Robey \(1999\)](#) in their ethnographic study of Seeuac – a large insurance company, found that when a controlling culture exists at the top, it can quash knowledge coming from other members and lead to the development of passivity among users. Similarly, [Hasan and Ditsa \(1999\)](#) found that successful IT adoption is more likely to take place when a low power distance exists between management and staff. They found that power confined to senior management can inhibit two-way communication; resulting in a situation where IT staff are less likely to provide important advice to management. Similarly, [Tolsby \(1998\)](#) in studying the effects of organizational culture on a large scale IT project at a Norwegian army unit found that a high command and control environment was very much a hindrance to successful IT adoption. In the case of the college, the hierarchical orientation resulted in lack of user interest towards the VLE.

The fatalists cast doubt on the overall value which the VLE would bring to the college and felt constrained by the excessive power enacted by the senior management team. Passivity was observed and there was an unwillingness of individuals belonging to this group to abandon normal routines. The fatalistic movement in the college bred a hampering organizational environment – an environment which did not favor the uptake of the VLE. [Wong, Jackson, and Philip \(2010\)](#) similarly found that a highly fatalistic environment can greatly impede the uptake of IS/IT within an organization. Fatalism fostered a resistant and insular environment which did not support technological change. Their study highlighted that fatalism, unless carefully dealt with can lead to individuals reverting back to traditional customs and not embracing new technology. Similarly, [Abdul-Gader \(1997\)](#), in his study of IS policy formulation and its

Table 5
Summary of cultural values and their impact on IS adoption.

Group/individuals involved	Cultural orientation(s)	Effect(s)
Steering group Users	Hierarchism Fatalism	Environment of power domination did not foster support for the VLE adoption. Isolated themselves and remained uninterested from taking part in the VLE adoption. There was continued reliance on traditional processes.
User champions	Individualism	Egotistical behavior; did not represent the needs of users. Fostered lack of user interest towards the VLE.

implication for IS management in Arab Gulf countries, found that a highly fatalistic orientation resulted in IS professionals and managers resisting long term IS planning and reliance on traditional customs and existing systems continued to be the norm.

This study also found that individualism, due to its idiosyncratic character promoting autonomy can lead to difficulties when introducing IS initiatives. Tsohou et al. (2006, p. 205) acknowledges that individualism has a dark side and is “associated with corner cutting, rule breaking and cheating, which means that people who share this worldview have a propensity to cheat, convert materials to their own use, short cut procedures for ease of operation and exploit ambiguities”. Dube (1998) in her study of software development practices highlighted the problems created with opportunist behavior. She found that the development group often put their interests before the interests of others – referring to this as “the paradox of self-interest” (Dube, 1998 p. 53). While the development group was responsible for producing innovative IT solutions, they often did things their own way, breeding a competitive environment – one which did not share ideas and engaged in political games. In the case of the college the user champions put their interests before the rest and did not address IT-related user concerns. Unfortunately, this orientation fostered lack of user interest towards the new system. A summary of the three perspectives and its effects on IS adoption can be viewed in Table 5.

It is also important to be aware of other contextual issues and how this might influence the successful adoption or rejection of technology within a further and higher education college. Educational establishments are notably bureaucratic in nature (Allen, 2003; Dearlove, 1999; White, Carvalho, & Riordan, 2011) – driven by rules, routine and formalized procedures, clear lines of authority and division, and complex administrative systems. Such orientations can act like super tankers, unable to turn around quickly when change is enforced on them. Managers within the college highlighted how the structure of the college was “administrative heavy” and “extremely bureaucratic”, and played a part in slowing down the rate of IT adoption.

Increased work pressure, conflicting priorities and competition for limited resources within educational institutions are often underlying reasons for change resistance or poor IT uptake (Deem, Hilliard, & reed, 2008). In the college, staff highlighted how an increasingly “long hours” culture and increased administration were often reasons for poor adoption of technology. Another important factor which influenced IS uptake was the market in which the college operated. Managers often shared how operating in a static environment (public sector), compared to a competitive dynamic environment, acted as a key impediment to change. For instance, the college typically followed, like many educational institutions, a rigid/long-term strategy compared to a flexible/short-term strategy, which often made IT adoption a long-drawn-out process.

It is also important to take into account whether or not lecturing staff are tenured or non-tenured. Tenured lecturers, who are granted academic freedom, may have more flexibility in either adopting new technology or rejecting it. On one hand, tenured staff, who expect to remain in the same institution for a long period of time, may invest adequate time in improving the institution's IT systems and remain optimistic about continued IT growth and expansion. Other research studies (Blackburn & Lawrence, 1986; Holley, 1977; Wolfe et al., 1996) have argued that as staff become tenured their aptitude and motivation can deteriorate, leading to blatant IT resistance or non-cooperative behavior. Although the college followed a non-tenured path, institutions should be aware that the extent to which staff are tenured can greatly influence an institutions decision to adopt IT.

6.1. Implications for research

This study has attempted to address some of the major challenges existing in IS culture studies. Firstly, this study revealed that important insights can be gained by combining approaches to understand organizational culture, particularly from the perspective of IS adoption. One weakness with existing approaches is the propensity for studies to adopt only one theoretical approach, for example CVM or Hofstede's framework. In order to comprehend the complex nature of culture in organizations, we, as a research community, must take a more holistic approach to studying organization culture. In other words, we must assume that culture is multifaceted in nature and needs to be understood from multiple approaches.

Secondly, too often there is the propensity to view culture as well integrated. In order for research to advance the IS discipline it must move away from solely perceiving culture from the integration perspective, and understand culture from all three of [Martin's \(2002\)](#) perspectives. Only then can we hope to understand the dynamic and intricate nature of culture. As this study found by scrutinizing the same problem from the three cultural perspectives, one gets a richer account of the events under investigation.

Thirdly another implication of the study is the need for further frameworks, and studies using frameworks, to take into account the dynamic nature of culture – not only understand the types of values which individuals may attached towards IS/IT, but also the impact when values crash and collide. One important way of understanding further the dynamic nature of culture is for the IS community to take, as in the case of this study, a more contemporary anthropological view of culture ([Avison & Myers, 1995](#); [Weisinger & Trauth, 2003](#)). Culture should not be viewed as “fossilized”, instead, it should be perceived as a dynamic process – a continuous weaving of multifarious voices, each reacting to one another and continuously responding to the world around them.

Fourthly another implication of the study is the need for further interpretative and longitudinal studies of culture. There is a need to move beyond superficial studies of culture – where researchers simply compare and contrast different cultural values, and under further how and why culture emerged and unfolds throughout IS implementation and adoption ([Gallivan & Srite, 2005](#)). This would require the researcher to spend a substantial amount of time in the organization. Culture should not be viewed as fixed; it is continuously in motion – in a constant state of flux and change, and it is this unfolding element which needs to be brought into play.

6.2. Implications for practice

The study raises a number of practical implications. As major developments in IS continue to be introduced into organizations at a phenomenal rate, the capacity for members to embrace technology will become more challenging. Undoubtedly, cultural issues will continue to grow in importance. Thus, the role and influence of culture in managing and implementing IS cannot be simply neglected. An important point raised in this study is that culture at the organizational and subgroup level can have a powerful, yet debilitating, effect on IS adoption. In other words, organizational culture can strongly influence what managers can and cannot do when introducing IS into organizations. Therefore, managers and practitioners should be aware that the introduction of IS is a complex process and is likely to consist of a variety of cultural interpretations. It is imperative for managers to understand and account for the different cultural factions existing within an organization. Therefore, ongoing attentiveness to culture should be embedded in the management process. Both [Martin's \(2002\)](#) three perspectives on culture and grid and group cultural theory ([Douglas, 1970](#); [Thompson et al., 1990](#)) can act as informative frameworks which managers can use to recognize the effects of culture. Managers could consider using cultural tools, for example, metaphorical analysis to gain rich insight to understand the organizational milieu.

6.3. Limitations of the study

This study is not without its limitations. Cultural theory and Martin's three-perspective approach has been applied to a single organization. Although the findings are valid and useful for other settings, additional studies are required to substantiate the arguments put forward in this paper. The study is retrospective in nature and involved asking interviewees to recall key events which occurred in the past. Perhaps using a stepped approach – carrying out interviews during the start, middle and latter stages of the IS adoption would have provided a more incisive description of key events. As the researcher entered the college in 2005 this approach was not feasible. However, obtaining an array of interviews from across different departments and levels, coupled with observations and documentary analysis provided a penetrating account of how the adoption process unfolded. One might argue that cultural theory only recognizes four ways of life and there may be other ways of life not considered or there may be other perspectives overlooked by [Martin \(2002\)](#).

6.4. Further study

Although this study has attempted to bridge an understanding between organizational culture and IS adoption, these two areas continue to be researched in isolation. The IS discipline would benefit enormously by adopting theories and frameworks from other disciplines, for example anthropology and sociology to study organizational culture. Martinsons and Davison (2003, p. 114) note that “there is now a very clear opportunity and also a very important need to undertake research that integrates perspectives from different social sciences, particularly in the areas of IT implementation and management”. A deeper insight into cultural values should be obtained by the use of more interpretative field studies and ethnographic methods (Martinsons & Davison, 2003; Straub, Loch, Evaristo, Karahanna, & Srite, 2002).

There is also a need to understand further the dynamics of culture, for example, why do certain groups of individuals adopt or take on certain cultural values instead of others and how and why do values change over a period of time. Further studies are also needed to understand and distinguish the different types of cultural values surrounding IT/IS. Leidner and Kayworth (2006, p. 371) note that “there appears to be strong interest in understanding the relationship of IT and culture and in determining how social groups interact with and apply IT in organizational settings”.

One important area not specifically addressed in this study is whether any one of the three perspectives or any of the four ways of life has a more detrimental impact on IS adoption than the other. Longer-term studies could also be conducted in organizations to examine how the perspectives and ways of life emerge and how they alter over time. Future studies could also examine if contextual factors (organizational history, level of IT maturity, management style or type of industry) influences perspective interplay.

7. Conclusions

The overarching aim of this study was to understand the relationship between organizational culture and IS adoption. Despite the growth in IS culture studies, this study recognizes that a number of challenges need to be overcome. Firstly, existing studies tend to view culture as well integrated or as a variable which can be easily maneuvered by managers, ignoring the pluralistic and ambiguous nature of culture; secondly, studies tend to downplay the importance of dynamics and how this affects IS adoption; thirdly, too often IS culture researchers have studied culture superficially using less sophisticated methods, at the expense of obtaining deep insights into the cultural milieu through thick description.

This study found that combining theoretical approaches can be a useful way of addressing and understanding the multi-faceted nature of culture. More specifically, the study found advantages in combining Martin (2002) three perspectives on culture – integration, differentiation and fragmentation, and the ways of life – fatalism, individualism, egalitarianism and hierarchism, proposed by grid and group cultural theory. Each approach – standing alone – has inherent weaknesses which can be overcome by the other. Combining the two approaches can provide valuable insights into the inner workings of culture and how culture influences IS adoption practices. As this study demonstrates, during the initial stages of the project in 2002 the environment was characterized by an *integrated* egalitarian culture; shifting to subgroup conflict between the hierarchists and fatalists in 2003 (*differentiation*), and then to cultural ambiguity, as demonstrated through the individualistic tendencies of the user champions (*fragmentation*). Culture was not static over time; instead it was dynamic – passing from one perspective to another in a sequential fashion. Nevertheless, the case did point out that at certain points in time there may be perspective overlap. A key point raised is that by viewing culture from all three perspectives can provide a rich and vivid understanding of culture than any of the perspectives in isolation.

Managers should be aware that culture at the organizational and subgroup level can strongly influence IS adoption and not all aspects of culture can be fully controllable; instead culture is always in the making (not made) and formed and reformed through social relations. Culture should not be viewed in a vacuum; instead it is pluralistic and actively contested between social relations. As this study shows, it was through ongoing social interaction between the various groups involved in the adoption of the VLE – the overwhelming power and control exerted by the senior management team, the fatalistic tendencies of

academic staff (system users) and the individualistic nature of the user champions, which resulted in a very unresponsive gridlocked organization – an orientation which did not favor the adoption of the VLE.

Acknowledgements

The author would like to thank the three anonymous reviewers and particularly the editor in chief, Daniel Robey, for their helpful advice and constructive comments in significantly improving the earlier drafts of this paper.

References

- Abdul-Gader, A. (1997). Information systems strategies for multinational companies in Arab gulf countries. *International Journal of Information Management*, 17(1), 3–12.
- Allen, D. (2003). Organizational climate and strategic change in higher education: Organizational insecurity. *Higher Education*, 46(1), 61–92.
- Alvesson, M. (1998). Gender relations and identity at work: A case study of masculinities and femininities in an advertising agency. *Human Relations*, 51, 969–1005.
- Avison, D., & Myers, M. (1995). Information systems and anthropology: An anthropological perspective on IT and organizational culture. *Information Technology & People*, 8(3), 43–56.
- Barrett, M. (1999). Challenges of EDI adoption for electronic trading in the London insurance market. *European Journal of Information Systems*, 8, 1–15.
- Bernstein, B. (1959). A public language — Some sociological implications of a linguistic form. *The British Journal of Sociology*, 10, 311–326.
- Blackburn, R., & Lawrence, J. (1986). Aging and the quality of faculty performance. *Review of Education Research*, 23, 265–290.
- Boholm, A. (1996). Risk perception and social anthropology: Critique of cultural theory. *Ethnos*, 61, 64–84.
- Boholm, A. (2003). The cultural nature of risk: Can there be an anthropology of uncertainty? *Ethnos*, 68(2), 159–178.
- Brown, A., & Starkey, K. (1994). The effect of organizational culture on communication and information. *Journal of Management Studies*, 31(6), 807–828.
- Cabrera, A., Cabrera, E., & Barajas, S. (2001). The key role of organizational culture in a multi-system view of technology-driven change. *International Journal of Information Management*, 21(3), 245–261.
- Chau, P., Cole, M., Massey, A., Montoya-Weiss, M., & O'Keefe, R. (2002). Cultural differences in the online behavior of consumers. *Communications of the ACM*, 45(10), 138–143.
- Claver, E., Llopis, J., Gonzalez, M., & Gasco, M. (2001). The performance of information systems through organizational culture. *Information Technology & People*, 14(3), 247–260.
- Davison, R., & Martinsons, M. (2003). Guest editorial cultural issues and IT management: Past and present. *IEEE Transactions on Engineering Management*, 50(1), 3–7.
- Dearlove, J. (1999). The deadly dull issue of university 'administration'? Good governance, managerialism and organizing academic work. *Higher Education Policy*, 11, 59–79.
- Deem, R., Hilliard, S., & reed, M. (2008). *Knowledge, higher education and the new managerialism*. Oxford: Oxford University Press.
- DeLisi, P. (1990). Lessons from the steel axe: Culture, technology, and organizational change. *Sloan Management Review*, 32(1), 83–93.
- DiBella, A. (1996). Culture and planned change in an international organization: A multi-level predicament. *International Journal of Organizational Analysis*, 4, 352–372.
- Doherty, N., & Doig, G. (2003). An analysis of the anticipated cultural impacts of the implementation of data warehouses. *IEEE Transactions on Engineering Management*, 50(1), 78–88.
- Douglas, M. (1970). *Natural symbols: Explorations in cosmology*. London: Routledge.
- Douglas, M. (1973). *Natural symbols: Explorations in cosmology*. New York: Vintage Books.
- Douglas, M. (1986). *How institutions think*. New York: Syracuse University Press.
- Douglas, M. (1992). *Risk and blame: Essays in cultural theory*. London: Routledge.
- Douglas, M. (1999). Four cultures: The evolution of a parsimonious model. *GeoJournal*, 47(3), 411–415.
- Douglas, M., & Wildavsky, A. (1982). *Risk and culture, an essay on the selection of technological and environmental dangers*. Berkeley: University of California Press.
- Dube, L. (1998). Teams in packaged software development: The software corp. experience. *Information Technology & People*, 11(1), 36–61.
- Dube, L., & Robey, D. (1999). Software stories: Three cultural perspectives on the organizational context of software development practices. *Accounting, Management & Information Technologies*, 9(4), 223–259.
- El Sawy, O. (1985). Implementation by cultural infusion: An approach for managing the introduction of information technologies. *MIS Quarterly*, 9(2), 131–140.
- Ferratt, T., & Vlahos, G. (1998). Investigations of task-technology fit for managers in Greece and the US. *European Journal of Information Systems*, 7(2), 123–136.
- Ford, D., Connelly, C., & Meister, D. (2003). Information systems research and Hofstede's culture's consequences: An uneasy and incomplete partnership. *IEEE Transactions on Engineering Management*, 50(1), 8–25.
- Gallivan, M., & Srite, M. (2005). Information technology and culture: Identifying fragmentary and holistic perspectives of culture. *Information & Organization*, 15(4), 295–338.
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York: Basic Books.
- Goffee, R., & Jones, G. (1996). What holds the modern company together? *Harvard Business Review*, 9(3), 275–285.
- Gold, R. (1969). Roles in sociological field observations. In G. McCall, & J. Simmons (Eds.), *Issues in participant observation: A text and reader*. New York: Random House.
- Gold, A., Malhotra, A., & Segars, A. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185–214.

- Grover, V., Teng, J., & Fiedler, K. (1998). IS investment priorities in contemporary organizations. *Communications of the ACM*, 41(2), 40–48.
- Hall, E. (1976). *Beyond culture*. New York: Anchor Press.
- Hammer, M. (1990). Reengineering work: Don't automate, obliterate. *Harvard Business Review*, 68(4), 104–112.
- Hampden-Turner, C., & Trompenaars, F. (1994). *The seven cultures of capitalism: Value systems for creating wealth in the United States, Britain, Japan, Germany, France, Sweden, and the Netherlands*. London: Piatkus.
- Harper, G., & Utley, D. (2001). Organizational culture and successful information technology implementation. *Engineering Management Journal*, 13(2), 11–15.
- Harrison, J., & Carroll, G. (1991). Keeping the faith: A model of cultural transmission in formal organizations. *Administrative Science Quarterly*, 36(4), 552–582.
- Hasan, H., & Ditsa, G. (1999). The impact of culture on the adoption of IT: An interpretive study. *Journal of Global Information Management*, 7(1), 5–15.
- Hauser, R., & Paul, R. (2006). IS service quality and culture: An empirical investigation. *The Journal of Computer Information Systems*, 47(1), 15–22.
- Hendry, J. (1999). Cultural theory and contemporary management organization. *Human Relations*, 52(5), 557–577.
- Hirschheim, R., & Newman, M. (1991). Symbolism and information systems development: Myth, metaphor and magic. *Information Systems Research*, 2(1), 29–62.
- Hoffman, N., & Klepper, R. (2000). Assimilating new technologies: The role of organizational culture. *Information Systems Management*, 17(3), 36–42.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, California: Sage Publications.
- Hofstede, G., & Bond, M. (1988). The confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, 16(4), 4–21.
- Hofstede, G., Neuijen, B., Ohayv, D., & Sanders, G. (1990). Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*, 35, 286–316.
- Holley, J. (1977). Tenure and research productivity. *Research in Higher Education*, 61, 181–192.
- Huang, J., Newell, S., Galliers, R., & Pan, S. (2003). Dangerous liaisons? Component-based development and organizational subcultures. *IEEE Transactions on Engineering Management*, 50(1), 89–99.
- Hult, G., Ketchen, D., & Nichols, E. (2002). An examination of cultural competitiveness and order fulfillment cycle time with supply chains. *Academy of Management Journal*, 45(3), 557–586.
- Igira, F. (2008). The situatedness of work practices and organizational culture: implications for information systems innovation uptake. *Journal of Information Technology*, 23, 79–88.
- Jackson, S., & Philip, G. (2005). Organizational culture and the management of technological change: A theoretical perspective. *ECIS 2005 Proceedings, Paper 149*. <http://aisel.aisnet.org/ecis2005/149>.
- Jackson, S., & Philip, G. (2010). A techno-cultural emergence perspective on the management of techno-change. *International Journal of Information Management*, 30(5), 445–456.
- Jarvanpaa, S., & Staples, S. (2001). Exploring perceptions of organizational ownership of information and expertise. *Journal of Management Information Systems*, 18(1), 151–183.
- Kaarst-Brown, M., & Robey, D. (1999). More on myth, magic and metaphor cultural insights into the management of information technology in organizations. *Information Technology & People*, 12(2), 192–217.
- Kamel, N., & Davison, R. (1996). Applying CSCW technology to overcome traditional barriers in group interactions. *Information & Management*, 34(4), 209–219.
- Kanungo, S., Sadavarti, S., & Srinivas, Y. (2001). Relating IT strategy and organizational culture: An empirical study of public sector units in India. *Journal of Strategic Information Systems*, 10(1), 29–57.
- Kappos, A., & Rivard, S. (2008). A three-perspective model of culture, information systems and their development and use. *MIS Quarterly*, 32(3), 601–634.
- Kappos, A., Rivard, S., & Lapointe, L. (2005). Explaining contradictory reactions to information technology implementation. : HEC Montréal ISSN 1702-238X.
- Kendall, J., & Kendall, K. (1993). Metaphors and methodologies: Living beyond the systems machine. *MIS Quarterly*, 17(2), 149–171.
- King, W., & Sethi, V. (1999). An empirical assessment of the organization of transnational information systems. *Journal of Management Information Systems*, 15(4), 7–28.
- Kitchell, S. (1995). Corporate culture, environmental adaptation, and innovation adoption: A qualitative/quantitative approach. *Journal of the Academy of Science*, 23(3), 195–205.
- Klein, H., & Myers, M. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67–93.
- Leidner, D., & Kayworth, T. (2006). Review: A review of culture in information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*, 30(2), 357–399.
- Lin, C., & Ha, L. (2010). Subculture, critical mass and technology use. *Journal of Computer Information Systems*, 2010, Spring, 1–15.
- Lyytinen, K., & Hirschheim, R. (1987). Information systems failure: A survey and classification of the empirical literature. In P. Zorkoczy (Ed.), *Oxford Surveys in Information Technology*, vol. 4, Oxford: Oxford University Press.
- Madon, S. (1993). Introducing administrative reform through the application of computer-based information systems: A case study in India. *Public Administration and Development*, 13, 37–48.
- Mamadouh, V. (1999). Grid-group cultural theory: An introduction. *GeoJournal*, 47(3), 395–409.
- Mars, G. (1982). *Cheats at work, an anthropology of workplace crime*. London: George Allen & Unwin.
- Martin, J. (2002). *Organizational culture: Mapping the terrain*. Thousand Oaks, CA: Sage Publications.
- Martinsons, M., & Davison, R. (2003). Guest editorial – Cultural issues and IT management: Looking ahead. *IEEE Transactions on Engineering Management*, 50(1), 113–117.
- Martinsons, M., & Ma, D. (2009). Sub-cultural differences in information ethics across China: Focus on Chinese management generation gaps. *Journal of the Association for Information Systems*, 10, 816–833.
- McDermott, C., & Stock, G. (1999). Organizational culture and advanced manufacturing technology implementation. *Journal of Operations Management*, 17(5), 521–533.

- Myers, M., & Tan, F. (2002). Beyond models of national culture in information systems research. *Journal of Global Information Management*, 10(1), 24–32.
- Ngwenyama, O., & Nielsen, P. (2003). Competing values in software process improvement: An assumption analysis of CMM from an organizational culture perspective. *IEEE Transactions on Engineering Management*, 50(1), 100–112.
- Patton, M. (2002). *Qualitative research and evaluation methods*. London: Sage.
- Perry, L. (2006). Risk, error and accountability: Improving the practice of school leaders. *Educational Research for Policy & Practice*, 5(2), 149–164.
- Philip, G., & McKeown, I. (2004). Business transformation and organizational culture: The role of competency, IS and TQM. *European Management Journal*, 22(6), 624–636.
- Piccoli, G. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly*, 25(4), 401–426.
- Powell, T., & Dent-Micallef, A. (1997). Information technology as competitive advantage: The role of human, business and technology resources. *Strategic Management Journal*, 18, 375–404.
- Quinn, R. (1988). *Beyond rational management: Mastering the paradoxes and competing demands of high performance*. San Francisco: Jossey-Bass.
- Quinn, R., & McGrath, M. (1985). The transformation of organizational cultures: A competing values perspective. In P. Frost, L. Moore, M. Louis, C. Lundberg, & J. Martin (Eds.), *Reframing Organizational Culture*. Beverly Hills, CA: Sage Publications, Inc.
- Quinn, R., & Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public Productivity Review*, 5, 122–144.
- Quinn, R., & Spreitzer, G. (1991). The psychometrics of the competing values culture instrument and an analysis of the impact of organizational culture on quality of life. *Research in Organizational Change and Development*, 5, 115–142.
- Rayner, S. (1986). Management of radiation hazards in hospitals: Plural rationalities in a single institution. *Social Studies of Science*, 16(4), 573–591.
- Robey, D., & Boudreau, M. (1999). Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications. *Information Systems Research*, 10(2), 167–185.
- Ruppel, C., & Harrington, S. (2001). Sharing knowledge through intranets: A study of organizational culture and intranet implementation. *IEEE Transactions on Professional Communication*, 44(1), 37–52.
- Schein, E. (1985). *Organizational culture and leadership*. San Francisco, CA: Jossey-Bass.
- Schein, E. (1990). Organizational culture. *The American Psychologist*, 45, 109–119.
- Schwarz, M., & Thompson, M. (1990). *Divided we stand: Redefining politics, technology and social choice*. New York: Harvester Wheatsheaf.
- Shahron, W. (2011). Higher education sub-cultures and open source adoption. *Computers and Education*, 57(1), 1171–1183.
- Sloan, R., & Green, H. (1995). Manufacturing decision support architecture. *Information Systems Management*, 12, 7–16.
- Smircich, L. (1983). Concepts of culture and organizational analysis. *Administrative Science Quarterly*, 28(3), 339–358.
- Straub, D., Loch, K., Evaristo, R., Karahanna, E., & Srite, M. (2002). Toward a theory-based measurement of culture. *Journal of global information management*, 10(1), 13–23.
- Thompson, M., Ellis, R., & Wildavsky, A. (1990). *Cultural theory*. Boulder: Westview Press.
- Tolsby, J. (1998). Effects of organizational culture on a large scale IT introduction effort: A case study of the Norwegian army's EDBLF project. *European Journal of Information Systems*, 7(2), 108–114.
- Tomlin, R. (1991). Developing a management climate culture in which information technology will flourish: How the UK can benefit. *Journal of Information Technology*, 6, 45–55.
- Tsohou, A., Karyda, M., Kokolakis, S., & Kiountouzis, E. (2006). Formulating information systems risk management strategies through cultural theory. *Information Management & Computer Security*, 14(3), 198–217.
- Von-Meier, A. (1999). Occupational cultures as a challenge to technological innovation. *IEEE Transactions on Engineering Management*, 46(1), 101–114.
- Wagner, E., & Newell, S. (2004). 'Best' for whom? The tension between 'best practice' ERP packages and diverse epistemic cultures in a university context. *Journal of Strategic Information Systems*, 13, 305–328.
- Wallach, E. (1983). Individuals and organizational: The cultural match. *Training and Development Journal*, 37(2), 28–35.
- Walsham, G. (2002). Cross-cultural software production and use: A structural analysis. *MIS Quarterly*, 26(4), 359–380.
- Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, 15(3), 320–330.
- Weber, Y., & Pliskin, N. (1996). The effects of information systems integration and organizational culture on a firm's effectiveness. *Information & Management*, 30(2), 81–90.
- Weisinger, J., & Trauth, E. (2003). The importance of situating culture in cross-cultural IT management. *IEEE Transactions on Engineering Management*, 50(1), 26–30.
- White, K., Carvalho, T., & Riordan, S. (2011). Gender, power and managerialism in universities. *Journal of Higher Education Policy and Management*, 33(2), 179–188.
- Wolfe, R., Beyer, J., Blackburn, R., Greenhalgh, L., Nayyar, P., & Seth, A. (1996). Rethinking the tenure process: The influences and consequences of power and culture. *Journal of Management Inquiry*, 5(3), 221–236.
- Wong, M., Jackson, S., & Philip, G. (2010). Cultural issues in developing e-government in Malaysia. *Behaviour & Information Technology*, 29(4), 423–432.